Please enter newly submitted claims 23-25. A clean copy of the amended and newly submitted claims is herewith provided as Attachment "B".

REMARKS

Claims 13-25 are pending in the application and are presented for reconsideration and further examination in view of the foregoing amendments and following remarks.

In the outstanding Office Action claims 13-22 were subjected to an Election Requirement predicated on the assertion that Group I claims 13-18 and Group II claims 19-22 do not relate to single general inventive concept under PCT rules 13.1 and 13.2, and affirmation of an election provisionally made with traverse was required; claims 13 and 16 were objected to due to informalities; claims 13-18 were rejected under 35 U.S.C. § 112, 2nd paragraph; claims 13-16 were rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 4,990,301 to Krishnakumar et al. in view of U.S. Patent No. 5,897,822 to van Manen et al. and U.S. Patent No. 5,032,341 to Krishnakumar et al.; claims 17-18 were rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,141,695 to Nakamura in view of the Krishnakumar et al. '301 patent, the van Manen et al. '822 patent and the Krishnakumar et al. '341 patent; and claims 19-22 were withdrawn from consideration.

By this Response and Amendment affirmation of Applicant's

provisional election with traverse is made and arguments in support of said traversal are provided; claims 13 and 16 are amended to obviate their informalities, and claims 13-18 are amended solely to obviate their indefiniteness rejections; and the obviousness rejections are traversed and arguments in support thereof are provided.

It is respectfully submitted that the amendments to claims 13-22 provided herein in no way narrow the scope of the respective claim limitations, each of said amendments being addressed either to obviating an informality, to correct an error of antecedent basis, or to amend said claims from their narrative form so as to conform to U.S. practice.

Support for newly submitted claims 23-25 is found in originally filed claim 17.

It is therefore respectfully submitted that the above amendments introduce no new matter within the meaning of 35 U.S.C. § 132.

Election Requirement

The Examiner subjected the application to an election requirement stating:

> Restriction is required under 35 U.S.C. 121 and 372.
> This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.
> In accordance with 37 CFR 1.499, applicant is

required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 13-18, drawn to drawn to a method for operating a multi-component injection molding form tool.

Group II, claim(s) 19-22, drawn to a preform.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical features of the invention may be found in EP0799683 A.

This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

During a telephone conversation with Mr. Marvin Berkowitz on March 4, 2002 a provisional election was made with traverse to prosecute the invention of Group I, claims 3-18. Affirmation of this election must be made by applicant in replying to this Office action. Claims 19-22 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

RESPONSE

Applicants affirm the provisional election, with traverse, of Group I, claims 13-18.

Traversal

Applicants respectfully traverse the election requirement.

Applicants respectfully submit that the Examiner has applied

an incorrect standard for asserting lack of unity of invention under PCT rules 13.1 and 13.2.

As noted in MPEP § 1893.03(d), unity of invention (not restriction) practice is applicable in national stage applications, such as the instant application, filed under 35 U.S.C. 371.

Although restriction practice continues to apply to U.S. national applications filed under 35 U.S.C. 111(a), when making a lack of unity of invention requirement the Examiner **must explain why each group lacks unity with each other group** (i.e., why there is no single general inventive concept) specifically describing the unique special technical feature in each group.

Applicants respectfully submit that the Examiner has made no such affirmative showing of lack of unity of invention. The Examiner has merely made a conclusory assertion of lack of unity predicated on an alleged foreign reference which the Examiner has neither cited in the substantive portion of the outstanding Office Action and which the Examiner has moreover failed to provide to Applicants so that they can consider same.

The principles of unity of invention are used to determine the types of claimed subject matter and the combinations of claims to different categories of invention that are permitted to be included in a single national stage patent application. The basic principle is that an application should relate to only one invention or, if there is more than one invention, that applicant would have **a right to include in a single application only those inventions which are**

so linked as to form a single general inventive concept.

A group of inventions is considered linked to form a single general inventive concept where there is a technical relationship among the inventions that involves **at least one common or corresponding special technical feature.** The expression special technical features is defined as meaning those technical features that define the contribution which each claimed invention, considered as a whole, makes over the prior art.

More specifically, MPEP 1850 states "A process is "specially adapted" for the manufacture of a product if the claimed process inherently produces the claimed product with the technical relationship being present between the claimed process and the claimed product. The expression "specially adapted" does not imply that the product could not also be manufactured by a different process. (See also 37 CFR 1.475(b) - An international or a national stage application containing claims to different categories of inventions will be considered to have unity of invention if the claims are drawn only to one of the following combinations of categories: (1) A product and a process specially adapted for the manufacture of said product.)

As also stated in MPEP 1893.03(d), **if the independent claims avoid the prior art and satisfy the requirement of unity of invention, no problem of lack of unity arises in respect of any claims that depend on the independent claims.** In particular, it

does not matter if a dependent claim itself contains a further invention.

In the instant application the Examiner has in effect conceded unity of invention among independent claims 13, 15 and 17. Thus, in accordance with MPEP 1850(A) as to claims 19-22, each dependent from one of claims 13, 15 and 18, no problem of lack of unity arises in respect of any of these claims since each one depends from one of the independent claims for which the Examiner has conceded unity of invention exists. Therefore, in accordance with MPEP 1850(A) it does not matter if one of the dependent claims itself contains a further invention.

Accordingly, reconsideration and withdrawal of the election requirement is respectfully requested.

The Examiner has also cited EP0799683 A for the proposition that said reference discloses the "special technical features" of the presently claimed invention.

Applicant initially traverses the Examiner's assertion because the Examiner has failed to provide a copy of the cited reference. Applicant additionally traverses the assertion and submits that the cited reference does not disclose the special technical feature of the instantly claimed invention.

In support of Applicant's traversal, Applicant herewith submits to the Examiner an English language copy of Canadian Patent No. 2,201,415 which is a counterpart of the cited EP reference.

Claim Objections

The Examiner objected to claims 13 and 16, stating:

> Claim 13 is objected to because of the following informalities: On line 6 of claim 13 includes the words "and-one" which appears to contain a typo and should be replaced with -and one-. Appropriate correction is required.
>
> The claims are objected to because they include reference characters which are not enclosed within parentheses.
>
> Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP 608.01 (m).
>
> Line 32 of claim 13 includes the words "position III" and the "III" is not is parentheses. Line 2 of claim 16 includes the words "position I" and the "I" is not in parentheses. Every other use of needle position indicators (i, II, III, IV) is in parentheses.

RESPONSE

Claims 13-22 have each been amended to obviate the Examiner's objections.

Claim 13, line 6, has been amended to change the word "and-one" to --and one--, as suggested by the Examiner; and each of claims 13-22 has been amended to delete all reference characters therefrom.

Accordingly, reconsideration and withdrawal of the objections is respectfully requested.

Rejections Under 35 U.S.C. § 112, 2nd Paragraph

The Examiner rejected claims 13-18, stating:

Claims 13-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Claim 13 recites the limitation "the innermost jet chamber" in lines 16, 20, 23, and 33. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "the other components" in line 24. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "the second step" in line 28. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "the third step" in 30. There is insufficient antecedent basis for this limitation in the claim.

Claims 13-18 are replete with inconsistent language that make the claims unclear and difficult to follow. For example Claim 13 includes the language of "whereby, in the first step in the cycle, the shut-off needle (37) is brought into a position (i), wherein the innermost jet chamber (3) containing component A and the outer jet chamber (5) containing component B are opened, whereby, in the first step' in the cycle, only component A is conveyed through the innermost jet chamber (3) and conveyance of the other components through the one outer jet chamber (5) is stopped" which is unclear. It is unclear how the outer jet chamber containing component B is opened and also stopped. Claims 13-18 contain many instances of language like this that render the claim language confusing and unclear.

It is further unclear if the letter "B" generally relates to the filling material or specifically to recycled material.

Regarding claim 17, the phrase "particularly" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP 2173.05(d).

RESPONSE

Claims 13-18 have been amended to obviate the rejections. As

amended the rejections are respectfully traversed.

Claim 13 has been amended to correct each noted instance of an error of antecedent basis; and each of claims 13-22 has been amended to correct all further errors of antecedent basis.

Each of independent claims 13, 15 and 17 has been amended to conform same to current U.S. practice by changing the form of the claims from its narrative form as originally submitted. In conjunction therewith, grammatical and idiomatic errors arising from the translation of the foreign document have also been corrected.

Additionally, each of independent claims 13, 15 and 17 has been amended to correct inconsistent language. For example, and with respect to the example cited by the Examiner in paragraph 15 of the Office Action, claims 13 has been amended to clarify that when the needle is in the first position whereby the inner and outer jet chambers are opened, in the first cycle step component A is conveyed and component B is not conveyed. That is, the word "stopped", which the Examiner found confusing in that it could not be understood how the outer jet chamber could be simultaneously opened and "stopped", has been changed to --not conveyed-- so as to clarify that the outer jet chamber is retained in the opened position but that component B is not flowing through said outer jet chamber during said first step.

With regard to paragraph 16 of the Office Action, claim 17 has been amended to delete reference to "recycled material" therefrom.

As used in claim 17 the letter "B" refers generally to one of three component materials "A", "B" and "C". Newly submitted claim 24, dependent from claim 17, has been added to further claim that said material component B is recycled material.

With regard to paragraph 17 of the Office Action, claim 17 has been amended to delete instances of "particularly" therefrom. With respect to the occurrence of the word "particularly" as used to refer to a preferred material for component "C" (i.e., nylon), reference to said preferred material has been removed from claim 17 and newly submitted claim 23 has been added to claim the particularly preferred material. With respect to the occurrence of the word "particularly" as used to refer to a preferred material for component "B" (i.e., recycled material), as noted above reference to said preferred material has been removed from claim 17 and newly submitted claim 24 has been added to claim the particularly preferred material.

It is respectfully submitted that as amended each of claims 13-25 is now in compliance with section 112.

Accordingly, reconsideration and withdrawal of the rejections is respectfully requested.

Rejections Under 35 U.S.C. § 103.

I. The Examiner rejected claims 13-16, stating:

> Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,990,301 {Krishnakumar et al. 1) in view of U.S. Patent No. 5,897

,822 (van Manen et al.), and U.S. Patent No. 5,032,341 (Krishnakumar et al. 2).

Krishnakumar et al. 1 teaches a variety of methods for forming multilayered preforms (Figures) where different materials are fed through different concentric injection nozzles into a mold cavity wherein different sequences of injecting single and multiple materials at once into the mold cavity result in different configurations of the multilayered preform. Krishnakumar et al. 1 uses a multi component injection molding tool that features hot runner nozzles and a needle shut-off mechanism (Figure 1 , Column 1, lines 18-23). Krishnakumar et al. 1 teaches that: "there are four flow passages. However, the number may be more or less as so desired." (Column 2, line 42-44). Krishnakumar et al. 1 teaches that the "gates 32, 36,40, 44 are selectively closed in sequence by a gate pin 46 which is positioned by means of a positioning device [sic] 48 which is automatically controlled." (Column 2, lines 65-68).

With regard to claims 13-16, Krishnakumar et al. 1 teaches several embodiments where the surface forming material (PET) is injected through the center nozzle and where the surface forming material (PET) is first injected singly followed by the injection of secondary materials through more outward nozzles to form core forming materials either with or without the PET through the central nozzle continued to be injected (Figures 2A, 2B, 5A, 5B, 8A, 88, 9A, 9B, 10A, 10B, 11A, 11B, 12A, 12B).

Krishnakumar et al. 1 does not specifically teach the use of recycled material for use as a core material but does teach the use of PET RG as a core material, but does not specify what constitutes PET RG. Krishnakumar et al. 2, however, in a similar process teaches the use of virgin PET for the skin forming material A and recycled PET for core forming material B (Column 3, lines 55-62). Krishnakumar et al. 2 further teaches that "material A would constitute 40-60% of the volume of the preform 24 while the material B would constitute the remainder of the volume" (Column 3, lines 63-67).

Krishnakumar et al. 1 also does not specifically teach a final step of injecting core forming material to fill the space created by material shrinkage after the first injection steps. Van Manen et al., however, teaches the addition of material to a mold cavity after the mold cavity is filled and cooled to completely fill the mold cavity following the cooling and shrinkage of the material originally used to fill the mold cavity (Figures 9 and 16, Column 8, lines 7-41).

It would have been obvious to one having ordinary skill in the art at the time of invention to produce a preform by the method as taught by Krishnakumar et al. 1 of first injecting a PET material alone through a central nozzle to form the outer layers of the preform followed by injecting a second material through a more outward nozzle to form an internal layer with the modification of allowing the material injected to cool and injecting more material into the mold cavity to fill space created by the shrinkage due to cooling of the original material injected as taught by van Manen et al. in order to create a multilayered preform with the structure as taught by Krishnakumar et al. 1 that exactly fills the mold cavity and does not have imperfections due to the shrinkage of the material during cooling. It would have been further obvious to one having ordinary skill in the art at the time of invention to use virgin PET as the outer layer forming material and to use recycled PET as the core forming layer as taught by Krishnakumar et al. 2 with the relative percentage of these materials as taught by Krishnakumar et al. 2 in order to reduce the material cost of the preform while maintaining the complete outer coverage of virgin material as required by food and beverage handling and packaging standards, and to use recycled material as the material injected after cooling as taught by van Manen et al. in order to avoid use of the more expensive virgin PET as the material injected after cooling will not be exposed to the inside of the preform. It would have been further obvious to one having ordinary skill in the art at the time of invention to perform the method as taught by Krishnakumar et al. 1 with the a molding tool as taught by either Krishnakumar et al. 1 or van Manen et at. and to use either mold tool in such a way as to selectively open and close different material flows in order to perform the method of Krishnakumar et al. 1 with available molding tools.

RESPONSE

Applicants respectfully traverse the rejections.

Applicants traverse the rejections because all three prongs for a *prima facie* case of obviousness have not been established for each of the rejections. Specifically, all the claim limitations are not present in the cited references and that even if combined

as suggested by the Examiner the combination would not result in the present invention as claimed.

To establish a *prima facie* case of obviousness, the Examiner must establish: (1) that some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest all the claim limitations. Amgen, Inc. v. Chugai Pharm. Co., 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 USPQ 494, 496 (C.C.P.A. 1970).

A *prima facie* case of obviousness must also include a showing of the reasons why it would be obvious to modify the references to produce the present invention. See Ex parte Clapp, 277 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). The Examiner bears the initial burden to provide some convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings. Id. at 974.

The instant invention, as claimed in claims 13-16, as originally submitted and as herein resubmitted, is directed to a method for operating a multi-component injection moulding form tool to produce 3-layered formed bodies.

As claimed in claims 13-14, during a first step in a moulding cycle an inner jet chamber (corresponding to a component A) and an outer jet chamber (corresponding to a component B) are each in an opened condition and only the component A is conveyed. In a second step in the moulding cycle the inner jet chamber is closed, the

outer jet chamber is retained in the opened condition and the component B is conveyed. In a third step in the moulding cycle (following a cooling phase) further component B is conveyed to compensate for shrinkage during the cooling. To complete the cycle both the inner and outer jet chambers are closed.

Similarly, as claimed in claims 15-16, during a first step in a moulding cycle an inner jet chamber (corresponding to a component C) and an outer jet chamber (corresponding to a component B) are each in an opened condition and only a component C is conveyed. In a second step in the moulding cycle the inner jet chamber is retained in the opened condition and the component C is conveyed therethrough, and the outer jet chamber is retained in the opened condition and the component B is simultaneously conveyed therethrough. In a third step in the moulding cycle the inner jet chamber is retained in the opened condition but conveyance of component C is halted, and the outer jet further is similarly retained in the open condition and further component B is conveyed therethrough. In a fourth step in the moulding cycle (following a cooling phase) further component B is conveyed to compensate for shrinkage during the cooling. To complete the cycle both the inner and outer jet chambers are closed.

In contrast, the cited primary reference - Krishnakumar et al. '301 patent, discloses with respect to the 3-layered preform embodiment of Figs. 2A-2B, at col. 4, lines 27-29, that the primary material is directed into the mold cavity for the full time of the

injection of molten plastic material.

Similarly, the Krishnakumar et al. '301 patent, discloses with respect to the 3-layered preform embodiment of Figs. 3A-3B, at col. 4, lines 50-54, that the primary material is injected for the full time of injection molding the preform and the secondary material is injected only during a selected portion of the injection time of the primary material but simultaneously therewith.

The Krishnakumar et al. '301 patent further discloses with respect to the 3-layered preform embodiment of Figs. 5A-5B, at col. 5, lines 25-46, that the primary material is injected during each of two discrete steps separated by an intervening step during which the primary material is not injected but the secondary material is injected.

Applicant respectfully submits that the Krishnakumar et al. '301 patent teaches away from the invention as claimed in claims 13-16 as originally submitted and as herein resubmitted because in the embodiments of Figs 2A-4B Krishnakumar et al. requires that the primary material be injected for the full time of the injection. Additionally, and with respect to the embodiments of Figs. 5A-5B, Krishnakumar et al. requires that the primary material is injected during each of two discrete steps separated by an intervening step during which the primary material is not injected. In the present invention, as claimed in claims 13-14, injection of the primary material is halted during the second and thirds injection steps

during which time only the filler material is injected; and in claims 15-16, injection of the primary material is halted after the second step during which time the filler material continues to be injected. It is therefore submitted that any purported combination based upon the Krishnakumar et al. '301 patent would fails to render obvious claims 13-16.

Accordingly, reconsideration and withdrawal of the rejections is respectfully requested.

II. The Examiner rejected claims 17-18, stating:

> Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,141 ,695 (Nakamura) in view of U.S. Patent No. 4,990,301 (Krishnakumar et al. 1), U.S. Patent No. 5,897,822 (van Manen et al.), and U.S. Patent No. 5,032,341 (Krishnakumar et al. 2).
>
> The discussion of Krishnakumar et al. 1 , van Manen et al., Krishnakumar et al. 2 above applies herein.
>
> Nakamura teaches methods for forming layered preforms for blow-molding bottles of consumer goods. Nakamura teaches that "where a bottomed pari son having a four-layered section is injection-molded, the injection of the first molten resin 6a is effected first in a manner similar to the previous description. Next, the aforesaid injection is stopped, and the second molten resin 7a and the third molten resin 8a are concurrently injected and introduced under pressure into the first molten resin 6a." (Column 4, lines 40-46). Nakamura further teaches that the "the first molten resin 6a may comprise polyethyleneterephthalate, the third molten resin 8a comprise resins having gas barrier property such as ethylene vinyl alcohol, polyamide, etc. , and the second molten resin 7a comprise a blend resin" (Column 4, line 67- Column 5, line 5). Polyamides are commonly known as nylons. Nakamura teaches, "wall-thickness distributions of the layers can also be adjusted by suitably selecting and controlling the injection conditions.
>
> With regard to claim 17, Nakamura does not teach the

second molten resin to be of recycled material. Krishnakumar et al. 2, however, teaches a multi-layered preform where virgin PET material is used to produce the outer surface layers of a preform and where the inner materials "may be selected from a variety of materials including colored PET, recycled PET, MXD-6 nylon; copolyesters, polypropylene (PP), PP/PET blend, polyacrylonitrile polycarbonate, and the like." (Column 3, lines 55~2). Krishnakumar et al. 2 further teaches the outer material to consist of 40~0 % and the other materials to range from 30- 40% and 10- 20% respectively (Column 3, line 63- Column 4, line 4).

Nakamura also does not specifically teach the mold tool used and how the material flows are controlled. Krishnakumar et al. 1 and van Manen et al. both teach co-injection molds for such preforms that use a needle to selectively control the flows of materials as discussed above.

Nakamura also does not specifically teach a secondary injection of recycled material into the mold cavity following the cooling of the originally molded material to compensate for the shrinkage of the material during cooling. Van Manen et at. teaches the injection of material to compensate for the shrinkage as discussed above.

It would have been obvious to one having ordinary skill in the art at the time of invention to produce a multi-layered preform as taught by Nakamura out of layers of virgin PET as a surface layer as taught by Krishnakumar et al. 2, a barrier layer as taught by Nakamura, and a layer of recycled PET as taught by Krishnakumar et al. 2 in order to use the method as taught by Nakamura to produce a structure as taught by Krishnakumar et al. 2 with barrier properties in a cost effective manner. It would have been further obvious to one having ordinary skill in the art at the time of invention to use a mold tool as taught by Krishnakumar et al. 1 or van Manen et al. to preform the procedure as taught by Nakamura in order to have precise control over the selective injection of each material through each nozzle by the movement of a supply control needle. It would have been further obvious to one having ordinary skill in the art at the time of invention to modify the process as taught by Nakamura by injecting material into the cavity after the material has cooled in order to compensate for shrinkage of the material due to cooling as taught by van Manen et al. and to inject recycled material in order to reduce costs as the material injected after the cooling step will not be exposed to

the inner surface of the formed preform.

With regard to claim 18, Nakamura does not specifically teach the percentage composition of the preform in regards to material but does teach that the layer thickness distribution can be varied with molding conditions. Krishnakumar et al. 2 teaches the outer material to consist of 40-60 % and the other materials to range from 30 - 40 % and 10 - 20 % respectively (Column 3, line 63- Column 4, line 4). Krishnakumar et al. 1 teaches different layer thickness distributions for different molding conditions, and has conditions where a thin layer of barrier material is produced with a range that includes 5% of the thickness of the overall preform. The percent thickness of a layered object would approximately equal the volume percentage. It would have been obvious to one having ordinary skill in the art at the time of invention to produce a layered preform according to the method as taught by Nakamura with a layer thickness distribution that minimizes cost and gives the most desirable properties to the finished product and the exact thickness distribution would be a result effective variable based upon the unclaimed variables of cost of the materials used, temperature of the molten resins, time per molding cycle, etc. and it would have been obvious to determine the thickness distribution through routine experimentation.

RESPONSE

Applicant respectfully traverses the rejections.

The instant invention, as claimed in claim 17, as originally submitted and as herein resubmitted, is directed to a method for producing a 5-layered preform.

As claimed in claim 17, during a first step in a moulding cycle an inner jet chamber (corresponding to a component C), an outer jet chamber (corresponding to a component A), and an intermediate jet chamber located between the inner and outer jet chambers (corresponding to a component B) are each in an opened condition and only the component A is conveyed through the outer

jet chamber. In a second step in the moulding cycle conveyance of the component A is halted and components B and C are each simultaneously conveyed. In a third step in the moulding cycle (following a cooling phase) further component B is conveyed to compensate for shrinkage during the cooling.

In contrast the cited primary reference - the Nakamura et al. '695 patent discloses at col. 3, lines 5-31, that in making a 5-layered preform a first resin is first injected through an outer passage. After injecting the first resin a second resin is injected through an intermediate flow passage into the first resin and a third resin is thereafter injected into the second resin.

The Nakamura '695 patent does not fairly teach or suggest that the second and third resins are simultaneously injected as claimed in the second step of claim 17.

The Examiner attempts to rely on Nakamura at col. 4, lines 40-46. Applicants respectfully submit that the cited passage in inapposite as said passage relates to a method for forming a 4-layer preform, not a 5-layer preform as claimed in claim 17. Moreover, the Examiner omits essential portions of the cited passage. Particularly, the Nakamura '695 patent recites at col. 4, line 47-48, that after injecting the 2nd and 3rd resins, into the 1st resin, the three resins are thereafter all simultaneously injected. In the present invention, as claimed in claim 17, after simultaneously conveying the 2nd and 3rd components into the 1st component, conveyance of one of the 2nd and 3rd components is halted;

and, after a cooling, the other of the 2nd and 3rd components is again conveyed.

It is therefore respectfully submitted that any purported combination based on the method of the Nakamura '695 patent would fail to render obvious the method of claim 17. Therefore claim 17 is asserted to be patentable over the cited prior art.

Claim 18, dependent from claim 17, is asserted to be patentable for at least the reasons that claim 17 is patentable thereover.

Newly Submitted Claims

Newly Submitted claims 23-25, each dependent from claim 17, are asserted to be patentable over the cited prior art for at least the same reasons that claim 17 is patentable thereover.

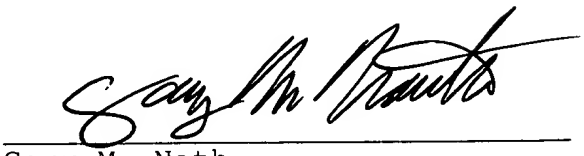
CONCLUSION

In light of the foregoing, Applicant submits that the application is in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicant respectfully requests that the Examiner contact the undersigned attorney if it is believed that such contact will expedite the prosecution of the application.

Attorney Docket No. 24140

Respectfully submitted,

NATH & ASSOCIATES PLLC



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Attachment "A"
(Marked-Up Copy of Amended Claims)

13. (Amended) Method for operating a multi-component injection moulding form tool [in order] to produce multi-layered formed bodies, [whereby] the multi-component injection moulding form tool [features] having:

a hot runner nozzle with a needle_shut-off mechanism [(36) used] to release or block one inner jet chamber [(3) and_one] and one outer jet chamber [(5)] of the nozzle [needle (34) and, to that end], the needle shut-off mechanism [(36) features] having a movable needle [(37)] and at least one first plunger [(38)] and one second plunger [(39)] cooperating therewith, arranged such that [they] said plungers are movable within a cylindrical barrel, [whereby either] each plunger [(38, 39) may be shifted by means of compression] being longitudinally shiftable in such a manner that the needle [(37) connected to these plungers (38, 39) may be] is brought into [the corresponding] a selected one of a plurality of releasing/blocking positions [(i, II, III, IV),] in said one inner and one outer jet chambers whereby [one] a component A [to] can be selectively injected [to form a thin surface layer of new material is directed] through the one inner[most] jet chamber [(3)] to form a thin surface layer of new material and [one] a component B [to] can be selectively injected as [the] a filler material [is directed] through the one outer

jet chamber [(5), whereby], said method having an operating cycle comprising in sequence the following steps:

in [the] a first step in the cycle, positioning the [shut-off] needle [(37) is brought] into a selected first one of said plurality of positions [(I), wherein] so that the one inner[most] jet chamber [(3) containing component A] and the one outer jet chamber [(5) containing component B] are opened and [, whereby, in the first step in the cycle, only] conveying component A [is conveyed] through the one inner[most] jet chamber [(3)] and not conveying [conveyance of the other components] component B through the one outer jet chamber [(5) is stopped, and];

characterised in that, in order to produce a three-layered preform with a component B content of over 35 %, component B is conveyed through the one outer jet chamber [(5)] in [the] a second step in the cycle; and

in a third step in the cycle [the] material shrunk during a cooling phase is replaced with further component B [in the third step in the cycle] such that the component B content amounts to over 35 vol. %[,]; and, in order to complete the [mould] cycle,

positioning the [shut-off] needle [(37) is brought] into a selected other of said plurality of positions [III, wherein] whereby both the one inner[most] jet chamber [(3)] and the one outer jet chamber [(5)] are closed.

14. (Amended) Method according to Claim 13, characterised

in that, [in] the second step in the cycle further comprises positioning [,] the [shut-off] needle [(37) is brought] into a further selected one of said plurality of positions [II,] wherein the one inner[most] jet chamber [(3)] is blocked and the one outer jet chamber [(5)] is opened.

15. (Amended) Method for operating a multi-component injection moulding form tool [in order] to produce multi-layered formed bodies, [whereby] the multi-component injection moulding form tool [features] having:

a hot runner nozzle with a needle shut-off mechanism [(36) used] to release or block one inner jet chamber [(3)] and one outer jet chamber [(5)] of the nozzle [needle (34) and, to that end], the needle shut-off mechanism [(36) features] having a movable needle [(37)] and at least one initial plunger [(38)] and one second plunger [(39)] cooperating therewith, arranged such that [they] said plungers are movable within a cylindrical barrel, [whereby either] each plunger [(38, 39) may be shifted by means of compression] being longitudinally shiftable in such a manner that the needle [(37) connected to these plungers (38, 39) may be] is brought into [the corresponding] a selected one of a plurality of releasing/blocking positions [(I, II, III, IV),] in said one inner and one outer jet chambers whereby [one] a component C [to] can be selectively injected [to form a thin barrier layer of barrier material is directed] through the one

inner[most] jet chamber [(3)] to form a thin barrier layer of barrier material and [one] a component B [to] can be selectively injected as [the] a filler material [is directed] through the one outer jet chamber [(5), whereby], said method having an operating cycle comprising in sequence the following steps:

in [the] a first step in the cycle, positioning the [shut-off] needle [(37) is brought] into a selected first one of said plurality of positions [(I) wherein] so that the one inner[most] jet chamber [(3) containing component C] and the one outer jet chamber [(5) containing component B] are opened and [, whereby, in the first step in the cycle, only] conveying component C [is conveyed] through the one inner[most] jet chamber [(3)] and not conveying [conveyance of the other] component B through the one outer jet chamber [(5) is stopped,];

characterised in that, in order to produce a three-layered preform with a barrier layer of [material] component C, [both] component C and component B are, respectively, simultaneously conveyed through the one inner[most] jet chamber [(3)] and the one outer jet chamber [(5) respectively] in [the] a second step in the cycle such that the component C content amounts to 5 % or less of the overall volume; [and in that,]

in [the] a third step in the cycle, conveyance of component C is interrupted in such a manner that only component B [material] is conveyed into [the] a mould cavity from the outer jet chamber [(5),]; and[,]

in [the] a fourth step in the cycle, [the] material shrunk during a cooling phase is replaced with [said] further component B[,]; and, in order to complete the [mould] cycle,

positioning the [shut-off] needle [(37) is brought] into a selected other of said plurality of positions [III, wherein] whereby both the one innermost jet chamber [(3)] and the one outer jet chamber [(5)] are closed.

16. (Amended) Method as claimed in Claim 15, characterised in that the [shut-off] needle [(37)] is left in said selected first one of said plurality of positions [I] in the second and third steps in the cycle.

17. (Amended) Method for producing a five-layered preform with an outer [(66)] and inner skin [(65)] fabricated from a [material] component A, a barrier layer fabricated from a [material] component C, [particularly nylon,] and a filler [material] component B, [particularly recycled material,] said method having an operating cycle comprising in sequence the following steps:

in [the] a first step in the cycle, [the] positioning a shut-off needle [(37) is brought] into a first position [I, wherein the] so that an innermost jet chamber [(3)] containing component C, [and both the] an outer jet chamber containing component A, and one jet chamber [in] therebetween containing

component B are opened, conveying [, whereby conveyance of components B and C is stopped in the first step in the cycle and only] component A [is conveyed] through the outer jet chamber, and not conveying components B and C;

[that conveyance of component A is stopped] in [the] a second step in the cycle [and] conveying components B and C [are conveyed] at the same time[, i.e. in the form of tubes,] and not conveying component A and[,];

in [the] a third step in the cycle, conveyance of component C is [stopped] halted and [the plastic forming] material shrunk during a cooling phase is replaced with further component B.

18. (Amended) Method according to Claim 17, characterised in that said second step in said cycle further comprises:

conveying a component C content of approx. 5 vol. % and a component B content of over 30 % of [the] an overall volume [is conveyed in the second step in the cycle].

19. (Amended) Preform produced according to [one of] the method[s] as claimed in Claim 13, characterised in that [it shows] said preform has a component B content of over 35 vol. %.

20. (Amended) Preform produced according to [one of] the method[s] as claimed in Claim 15, characterised in that [it shows] said preform has a barrier layer of material C of less

than approx. 5 vol. % and a material B content of over 35 vol. %.

21. (Amended) Preform produced according to [one of] the method[s] as claimed in Claim 15, characterised in that [it shows] said preform has a component B content of over 35 vol. %.

22. (Amended) Preform produced according to [one of] the method[s] as claimed in Claim 17, characterised in that [it shows] said preform has a barrier layer of material C of less than approx. 5 vol. % and a material B content of over 35 vol. %.

Attachment "B"
(Clean Copy of Amended and Newly Submitted Claims)

13. (Amended) Method for operating a multi-component injection moulding form tool to produce multi-layered formed bodies, the multi-component injection moulding form tool having:

a hot runner nozzle with a needle shut-off mechanism to release or block one inner jet chamber and one outer jet chamber of the nozzle, the needle shut-off mechanism having a movable needle and at least one first plunger and one second plunger cooperating therewith, arranged such that said plungers are movable within a cylindrical barrel, each plunger being longitudinally shiftable in such a manner that the needle is brought into a selected one of a plurality of releasing/blocking positions in said one inner and one outer jet chambers whereby a component A can be selectively injected through the one inner jet chamber to form a thin surface layer of new material and a component B can be selectively injected as a filler material through the one outer jet chamber, said method having an operating cycle comprising in sequence the following steps:

in a first step in the cycle, positioning the needle into a selected first one of said plurality of positions so that the one inner jet chamber and the one outer jet chamber are opened and conveying component A through the one inner jet chamber and not conveying component B through the one outer jet chamber;

characterised in that, in order to produce a three-layered preform with a component B content of over 35 %, component B is conveyed through the one outer jet chamber in a second step in the cycle; and

in a third step in the cycle material shrunk during a cooling phase is replaced with further component B such that the component B content amounts to over 35 vol. %; and, in order to complete the cycle,

positioning the needle into a selected other of said plurality of positions whereby both the one inner jet chamber and the one outer jet chamber are closed.

14. (Amended) Method according to Claim 13, characterised in that, the second step in the cycle further comprises positioning the needle into a further selected one of said plurality of positions wherein the one inner jet chamber is blocked and the one outer jet chamber is opened.

15. (Amended) Method for operating a multi-component injection moulding form tool to produce multi-layered formed bodies, the multi-component injection moulding form tool having:

a hot runner nozzle with a needle shut-off mechanism to release or block one inner jet chamber and one outer jet chamber of the nozzle, the needle shut-off mechanism having a movable needle and at least one initial plunger and one second plunger

cooperating therewith, arranged such that said plungers are movable within a cylindrical barrel, each plunger being longitudinally shiftable in such a manner that the needle is brought into a selected one of a plurality of releasing/blocking positions in said one inner and one outer jet chambers whereby a component C can be selectively injected through the one inner jet chamber to form a thin barrier layer of barrier material and a component B can be selectively injected as a filler material through the one outer jet chamber, said method having an operating cycle comprising in sequence the following steps:

in a first step in the cycle, positioning the needle into a selected first one of said plurality of positions so that the one inner jet chamber and the one outer jet chamber are opened and conveying component C through the one inner jet chamber and not conveying component B through the one outer jet chamber;

characterised in that, in order to produce a three-layered preform with a barrier layer of component C, component C and component B are, respectively, simultaneously conveyed through the one inner jet chamber and the one outer jet chamber in a second step in the cycle such that the component C content amounts to 5 % or less of the overall volume;

in a third step in the cycle, conveyance of component C is interrupted in such a manner that only component B is conveyed into a mould cavity from the outer jet chamber; and

in a fourth step in the cycle, material shrunk during a

cooling phase is replaced with further component B; and, in order to complete the cycle,

positioning the needle into a selected other of said plurality of positions whereby both the one innermost jet chamber and the one outer jet chamber are closed.

16. (Amended) Method as claimed in Claim 15, characterised in that the needle is left in said selected first one of said plurality of positions in the second and third steps in the cycle.

17. (Amended) Method for producing a five-layered preform with an outer and inner skin fabricated from a component A, a barrier layer fabricated from a component C, and a filler component B, said method having an operating cycle comprising in sequence the following steps:

in a first step in the cycle, positioning a shut-off needle into a first position so that an innermost jet chamber containing component C, an outer jet chamber containing component A, and one jet chamber therebetween containing component B are opened, conveying component A through the outer jet chamber, and not conveying components B and C;

in a second step in the cycle conveying components B and C at the same time and not conveying component A and;

in a third step in the cycle, conveyance of component C is

halted and material shrunk during a cooling phase is replaced with further component B.

18. (Amended) Method according to Claim 17, characterised in that said second step in said cycle further comprises:

conveying a component C content of approx. 5 vol. % and a component B content of over 30 % of an overall volume.

19. (Amended) Preform produced according to the method as claimed in Claim 13, characterised in that said preform has a component B content of over 35 vol. %.

20. (Amended) Preform produced according to the method as claimed in Claim 15, characterised in that said preform has a barrier layer of material C of less than approx. 5 vol. % and a material B content of over 35 vol. %.

21. (Amended) Preform produced according to the method as claimed in Claim 15, characterised in that said preform has a component B content of over 35 vol. %.

22. (Amended) Preform produced according to the method as claimed in Claim 17, characterised in that said preform has a barrier layer of material C of less than approx. 5 vol. % and a material B content of over 35 vol. %.

23. (Newly Submitted) Method as claimed in claim 17 wherein said component C comprises nylon.

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24. (Newly Submitted) Method as claimed in claim 17 wherein said component B comprises recycled material.

25. (Newly Submitted) Method as claimed in claim 17 wherein in said second step said components B and C are conveyed in the form of tubes, one of said components B and C lying inside the other of said components B and C.